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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,380	01/26/2004	Maurice M. Moloney	9369-292	4979

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EXAMINER	
RAGHU, GANAPATHIRAM	
ART UNIT	**PAPER NUMBER**
1652	

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10/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/763,380	MOLONEY ET AL.	
	Examiner	Art Unit	
	Ganapathirama Raghu	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *42-69* is/are pending in the application.

4a) Of the above claim(s) *51-55,62,68 and 69* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *42-50, 56-60 and 63-67* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/18/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicants' election with traverse of Group I, claims 42-67, an isolated polynucleotide encoding a chimeric fusion polypeptide, vector, host cell and method of making polypeptide and further election of species: factor Xa, carp growth hormone and oleosin for prosecution in their response dated 08/23/2007 is acknowledged. Applicants' traversal is based on the argument that searching of all species would not be a serious search burden. Applicants' arguments have been considered and are found to be non-persuasive for reasons stated in requirement of restriction letter dated 06/12/07. Group I invention comprises structurally varied and distinct molecules that have either different structures or encode genes with different structures and are patentably distinct, searching for all the species would impose a serious search burden. The species are independent or distinct because, claims to the different species recite the mutually exclusive characteristics of such species. In addition, these species are not obvious variants of each other based on the current record. Furthermore, a search for an isolated polynucleotide encoding a specific chimeric fusion polypeptide comprising specific heterologous polypeptide, cleavage site or specific oil body protein in Group I would not yield results related to any other fusion proteins comprising other cleavage sites or heterologous polypeptides or oil body proteins and therefore search would not be coextensive or overlapping and in addition each of the species in the fusion protein is patentably distinct. As stated earlier in the Office action correspondence dated 06/12/07, the inventions are distinct and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper. Contrary to applicants' arguments, for the above cited reasons, searching of all species in Groups I is a serious search burden and pursuant to 35 U.S.C. 121, 37 CFR 1.143 and 37 CFR 1.499, examiner

is required to examine the elected invention. The requirement is still deemed proper and is therefore made FINAL.

Claims 42-69 are pending in this application, claims 68 and 69 are withdrawn as they are drawn to non-elected inventions, further claims 51-55 and 62 are also withdrawn as said claims do not read on the elected species/subject matter, carp growth hormone. Thus, claims 42-50, 56-61 and 63-67, drawn to an isolated polynucleotide encoding a chimeric fusion polypeptide, vector, host cell and method of making polypeptide, said fusion polypeptide comprising the elected species: factor Xa, carp growth hormone and oleosin, are now under consideration for examination.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 08/18/2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner is considering the IDS statement.

Drawings

Drawings are accepted for examination purposes only.

Objection-Oath Declaration

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

1) It does not identify the city and either state or foreign country of residence of each inventor. The residence information may be provided on either an application data sheet or supplemental oath or declaration.

2) The declaration is not dated.

Claim Objections

Claim 42 (claims 43-51 and 56-59 depending therefrom, claim 60 and claim 61 (claims 63-67 depending therefrom) are objected to because of the following informalities: Claims 42, 58-61, 65 and 66 recite the phrase "gene". It is not clear to the examiner as to what this phrase means in the context of the above claims. A "gene" could comprise other upstream and downstream elements such as regulatory sequences/elements, enhancers, promoters and un-translated regions (UTRs). Therefore, examiner suggests amending the claims to recite "an isolated polynucleotide encoding the oil body protein oleosin open reading frame (ORF)". Appropriate correction is required.

Claim Rejections: 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 42 (claims 43-52 and 56-59 depending therefrom), claim 60 and claim 61 (claims 62-67 depending therefrom) are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 42, 60 and 61 is rejected for the phrase "sufficient portion", as the metes and bounds encompassed by the claim are not clear. What are the structural and functional limitations encompassed and is considered to be "sufficient portion" of the elected oil body protein oleosin? Perusal of the specification did not yield a definition for "sufficient portion". Clarification and correction is required.

Claim Rejections: 35 USC § 112-First Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Enablement

Claims 42-50, 56-61 and 63-67 are rejected under 35 U.S.C. 112, first paragraph, because the specification while being enabling for a chimeric nucleic acid sequence encoding a fusion polypeptide comprising the full length oil body protein oleosin (polynucleotide of SEQ ID NO: 1 encoding the polypeptide of SEQ ID NO: 2) comprising a cleavable linker and a heterologous polypeptide (as in claims 61 and 63-67) and to a method of producing said chimeric fusion polypeptide in a plant host cell (as in claims 42-50 and 56-60), the specification does not reasonably provide enablement for any chimeric nucleic acid sequence encoding a fusion polypeptide comprising any nucleic acid sequence that encodes a "sufficient portion" of an oil body protein or any oleosin of undefined structure necessary for the functional activity of said oil body protein, said fusion protein further comprising a cleavable linker and a polynucleotide encoding heterologous polypeptide and to a method of producing said chimeric fusion polypeptide in any host cell. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and or use the invention commensurate in scope with the claim.

Factors to be considered in determining whether undue experimentation is required are summarized in *In re Wands* (858 F.2d 731, 8 USPQ 2nd 1400 (Fed. Cir. 1988)) as follows: (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claim(s).

Claims 42-50, 56-61 and 63-67 are so broad as to encompass any chimeric nucleic acid sequence encoding a fusion polypeptide comprising any nucleic acid sequence that encodes a "sufficient portion" of an oil body protein or any oleosin of undefined structure necessary for the functional activity of said oil body protein, said fusion protein further comprising a cleavable linker and a polynucleotide encoding heterologous polypeptide and to a method of producing said chimeric fusion polypeptide in any host cell. The scope of the claims are not commensurate with the enablement provided by the disclosure with regard to the extremely large number of fusion-polypeptides broadly encompassed by the claims. Since the amino acid sequence of a protein encoded by a polynucleotide determines its structural and functional properties, predictability of which changes can be tolerated in a protein's amino acid sequence and obtain the desired activity requires knowledge and guidance with regard to which amino acids in the protein's sequence and the respective codons in its polynucleotide, if any, are tolerant of modification and which are conserved (i.e. expectedly intolerant to modification), and detailed knowledge of the ways in which the encoded proteins' structure relates to its function. However, in this case the disclosure is limited to the use of a chimeric nucleic acid sequence encoding a fusion polypeptide comprising the full length oil body protein oleosin (polynucleotide of SEQ ID NO: 1 encoding the polypeptide of SEQ ID NO: 2) comprising a cleavable linker and a heterologous polypeptide (as in claims 61 and 63-67) and to a method of producing said chimeric fusion polypeptide in a plant host cell (as in claims 42-50 and 56-60), but provides no guidance with regard to the making of variants and mutants of any oil body protein or any oleosin linked via cleavable linker to a heterologous polypeptide and to a method of expression in any host cell or with regard to other uses. In view of the great breadth of the claims, amount of

experimentation required to make the claimed polypeptides the lack of guidance, working examples, and unpredictability of the art in predicting function from a polypeptide primary structure (e.g., see Whisstock et al., Q Rev Biophys. 2003 Aug; 36(3): 307-340), the claimed invention would require undue experimentation. Further, Li et al., (J. Biol. Chem., 2002, Vol. 277 (40): 37888-37895) teach: **i)** that there are more than 40 different oleosins, comprising a characteristic central hydrophobic domain of ~70-75 uninterrupted and uncharged residues that forms an hairpin loop around three conserved proline residues around which flanked by relatively polar C-terminal (~65 residues) and N-terminal domains (~50 residues) and these domains are diverse in amino acid structure (Column 2, second paragraph, page 37888 and Column 2, Discussion, page 37892); **ii)** difficulty in expressing the central domain (hydrophobic domain) in *E.coli*, yeast and cell-free translation system (in fact, even the applicants' in the instant application have admitted on record that that the activity observed for fusion product is less than the unfused product when expressed in *E.coli*, Example 17: pages 62-64 of specification); **iii)** results from said study indicated that the maximum stability of reconstituted oil body emulsion is only possible with the intact oleosin protein and surface oriented amphipathic N- and C-terminal domains may play an important role in emulsion formation (column 1, second paragraph, page 37894); and **iv)** identical oleosin molecules can interact to form homo-oligomers, some of which remain associated even in the presence of strong denaturants, such as SDS. Therefore, the specification fails to teach one of ordinary skill how to make and use the full scope of the fusion polypeptides encompassed by the claims.

While enzyme isolation techniques, recombinant and mutagenesis techniques are known, and it is not routine in the art to screen for multiple substitutions or multiple modifications as

encompassed by the instant claims, the specific amino acid positions within a protein's sequence where amino acid modifications can be made with a reasonable expectation of success in obtaining the desired activity/utility are limited in any protein and the result of such modifications is unpredictable. In addition, one skilled in the art would expect any tolerance to modification for a given protein to diminish with each further and additional modification, e.g. multiple substitutions or deletions.

The specification does not support the broad scope of the claims for any chimeric nucleic acid sequence encoding a fusion polypeptide comprising any nucleic acid sequence that encodes a "sufficient portion" of an oil body protein or any oleosin of undefined structure necessary for the functional activity of said oil body protein, said fusion protein further comprising a cleavable linker and a polynucleotide encoding heterologous polypeptide and to a method of producing said chimeric fusion polypeptide in any host cell as claimed in claims 42-50, 56-61 and 63-67, because the specification does not establish: (A) regions of the protein/polynucleotide structure which may be modified without affecting the activity of any oil body protein or any oleosin; (B) the general tolerance of the polypeptide and the polynucleotide encoding any oil body protein or any oleosin to modification and extent of such tolerance; (C) a rational and predictable scheme for modifying any amino acid residue or the respective codon in the polynucleotide with an expectation of obtaining the desired biological function with regards to any oil body protein or any oleosin; (D) said variant fusion polypeptides adopting a molecular configuration (as amphipathic N- and C- terminal portion/domains and central hydrophobic domain are required for the stable configuration of the oil body protein, such that the cleavable site is accessible to by protease factor Xa; (E) said variant fusion polypeptides adopting a molecular configuration with

desirable properties and expressed to desirable levels in any host cell and presence or absence of necessary molecular chaperones that are necessary to express and proper folding of the fusion polypeptides in any host cell and (E) the specification provides insufficient guidance as to which of the essentially infinite possible choices is likely to be successful.

Thus, applicants have not provided sufficient guidance to enable one of ordinary skill in the art to make and use the claimed invention in a manner reasonably correlated with the scope of the claim broadly including methods of using polypeptides with an enormous number of modifications. The scope of the claim must bear a reasonable correlation with the scope of enablement (*In re Fisher*, 166 USPQ 19 24 (CCPA 1970)). Without sufficient guidance, determination of any chimeric nucleic acid sequence encoding a fusion polypeptide comprising any nucleic acid sequence that encodes a "sufficient portion" of an oil body protein or any oleosin of undefined structure necessary for the functional activity of said oil body protein, said fusion protein further comprising a cleavable linker and a polynucleotide encoding heterologous polypeptide and to a method of producing said chimeric fusion polypeptide in any host cell is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See *In re Wands* 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988).

Written Description

Claims 42-50, 56-61 and 63-67 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 42-50, 56-60 and 63-67 are directed to any chimeric nucleic acid sequence encoding a fusion polypeptide comprising any nucleic acid sequence that encodes a "sufficient portion" of an oil body protein or any oleosin of undefined structure necessary for the functional activity of said oil body protein, said fusion protein further comprising a cleavable linker and a polynucleotide encoding heterologous polypeptide and to a method of producing said chimeric fusion polypeptide in any host cell.

Claims 42-50, 56-60 and 63-67, are rejected under this section 35 U.S.C. 112, because the claims as interpreted, are directed to a genus of polynucleotides and encoding fusion polypeptides and to a method of making said fusion polypeptide that involves a genus of polynucleotides and encoding polypeptides in a genus of host cells with no support in the specification for the structural details associated with the function i.e., any chimeric nucleic acid sequence encoding a fusion polypeptide comprising any nucleic acid sequence that encodes a "sufficient portion" of an oil body protein or any oleosin of undefined structure necessary for the functional activity of said oil body protein, said fusion protein further comprising a cleavable linker and a polynucleotide encoding heterologous polypeptide and to a method of producing said chimeric fusion polypeptide in any host cell. No description of identifying characteristics of all of the sequences of an isolated polynucleotide encoding a fusion polypeptide of any oil body protein or any oleosin including variants, mutants and recombinants and to a method of making said fusion polypeptides under any cellular context i. e., any host cell, has been provided by the applicants in the specification. No information, beyond the characterization of an isolated chimeric nucleic acid sequence encoding a fusion polypeptide comprising the full length oil body protein oleosin (polynucleotide of SEQ ID NO: 1 encoding the polypeptide of SEQ ID NO: 2)

comprising a cleavable linker and a heterologous polypeptide (as in claims 61 and 63-67) and to a method of producing said chimeric fusion polypeptide in a plant host cell (as in claims 42-50 and 56-60) has been provided by the applicants in the specification. Therefore, one skilled in the art cannot reasonably conclude that applicant had possession of the claimed invention at the time the instant application was filed. This recitation fails to provide a sufficient description of the claimed genus of polypeptides as it merely describes the functional features of the genus without providing any definition of the structural features of the species within the genus.

In *University of California v. Eli Lilly & Co.*, 43 USPQ2d 1938, the Court of Appeals for the Federal Circuit has held that "A written description of an invention involving a chemical genus, like a description of a chemical species, 'requires a precise definition, such as by structure, formula, [or] chemical name,' of the claimed subject matter sufficient to distinguish it from other materials". As indicated in MPEP § 2163, the written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species by actual reduction to practice, reduction to drawings, or by disclosure of relevant, identifying characteristics, i.e., structure or other physical and/or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show that Applicant was in possession of the claimed genus. In addition, MPEP § 2163 states that a representative number of species means that the species which are adequately described are representative of the entire genus. Thus, when there is substantial variation within the genus, one must describe a sufficient variety of species to reflect the variation within the genus.

Applicant is referred to the revised guidelines concerning compliance with the written description requirement of U.S.C. 112, first paragraph, published in the Official Gazette and also available at www.uspto.gov.

Double Patenting rejection

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761

(CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 42-50, 55, 58-60, 61 and 63-67 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9, 16, 29, 31 and 32 of prior U.S. Patent No. 5,650,554. An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claim, because the examined claim is either anticipated by, or would have been obvious over reference claim. See, e.g., *In re Berg*, 140 F.3d 1428,46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir.1993); *In re Longi* 759 F.2d 887,225 USPQ 645 (Fed. Cir. 1985). Although, the conflicting claims are not identical, they are not patentably distinct from each other because Claim 42 of the instant application is generic to all that is recited in claim 1 of prior U.S. Patent No. 5,650,554. Claims 42-50, 55, 58-60, 61 and 63-67 of the instant application and claims 1-9, 16, 29, 31 and 32 of prior U.S. Patent No. 5,650,554 are both directed to same method of expression of heterologous polypeptide i. e., by introducing a polynucleotide encoding a chimeric fusion polypeptide, vector, host cell and method of making polypeptide, said fusion polypeptide comprising the elected species: factor Xa, and oil body protein oleosin. The claims differ in that claims 42-50, 55, 58-60, 61 and 63-67 of instant application recites "A method of expression of a heterologous polypeptide by a host cell...", whereas 1-9, 16, 29, 31 and 32 of prior U.S. Patent No. 5,650,554 recites "A method of expression of a heterologous polypeptide by a plant or bacterial host cell...". Claims 42-50, 55, 58-60, 61 and 63-67 of the instant application listed

above cannot be considered patentably distinct over claims 1-9, 16, 29, 31 and 32 of prior U.S. Patent No. 5,650,554 as claims 1-9, 16, 29, 31 and 32 of the patent would anticipate claims 42-50, 55, 58-60, 61 and 63-67 of the instant application.

Claim 57 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9, 16, 29, 31 and 32 of prior U.S. Patent No. 5,650,554. An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claim, because the examined claim is either anticipated by, or would have been obvious over reference claim. See, e.g., *In re Berg*, 140 F.3d 1428,46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir.1993); *In re Longi* 759 F.2d 887,225 USPQ 645 (Fed. Cir. 1985). Claims 57 of the instant application and claims 1-9, 12-15 and 17-19 of reference patent U.S. Patent No. 5,948,682 are both directed to same method of expression of heterologous polypeptide i. e., by introducing a polynucleotide encoding a chimeric fusion polypeptide, vector, host cell and method of making polypeptide, said fusion polypeptide comprising the elected species: factor Xa, carp growth hormone and oil body protein oleosin. The claims differ in that claim 57 of instant application recites "A method of expression of a heterologous polypeptide by a host cell, wherein said host cell is an insect or animal cell", whereas 1-9, 16, 29, 31 and 32 of prior U.S. Patent No. 5,650,554 recites "A method of expression of a heterologous polypeptide by a plant or bacterial host cell...". Given the methods of claims 1-9, 16, 29, 31 and 32 of prior U.S. Patent No. 5,650,554, it would have been obvious to one of ordinary skill in the art to modify the host cell in claims 1-9, 16, 29, 31 and 32 of prior U.S. Patent No. 5,650,554 to an insect or animal cells. One of ordinary skill in the art would have

been motivated to do this because the repotire or range of the host cells used for expression is expanded.

Claims 42-50, 55, 56, 58-60, 61 and 63-67 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9, 13-19 and 21-26 of prior U.S. Patent No. 6,753,167 B2. An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claim, because the examined claim is either anticipated by, or would have been obvious over reference claim. See, e.g., *In re Berg*, 140 F.3d 1428,46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir.1993); *In re Longi* 759 F.2d 887,225 USPQ 645 (Fed. Cir. 1985). Although, the conflicting claims are not identical, they are not patentably distinct from each other because Claim 42 of the instant application is generic to all that is recited in claim 1 of prior U.S. Patent No. 6,753,167 B2. Claims 42-50, 55, 56, 58-60, 61 and 63-67 of the instant application and claims 1-9, 13-19 and 21-26 of prior U.S. Patent No. 6,753,167 B2 are both directed to same method of expression of heterologous polypeptide i. e., by introducing a polynucleotide encoding a chimeric fusion polypeptide, vector, host cell and method of making polypeptide, said fusion polypeptide comprising the elected species: factor Xa, carp growth hormone (somatotropin) and oil body protein oleosin. The claims differ in that claims 42-50, 55, 56, 58-60, 61 and 63-67 of instant application recites "A method of expression of a heterologous polypeptide by a host cell...", whereas 1-9, 13-19 and 21-26 of prior U.S. Patent No. 6,753,167 B2 recites "A method of expression of somatotropin in plants ...". Claims 42-50, 55, 56, 58-60, 61 and 63-67 of the

instant application listed above cannot be considered patentably distinct over claims 1-9, 13-19 and 21-26 of prior U.S. Patent No. 6,753,167 B2 because the claims of the prior patent that would anticipate claims 42-50, 55, 56, 58-60, 61 and 63-67 of the instant application.

Claim 57 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9, 13-19 and 21-26 of prior U.S. Patent No. 6,753,167 B2. An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claim, because the examined claim is either anticipated by, or would have been obvious over reference claim. See, e.g., *In re Berg*, 140 F.3d 1428,46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir.1993); *In re Longi* 759 F.2d 887,225 USPQ 645 (Fed. Cir. 1985). Claims 57 of the instant application and claims 1-9, 13-19 and 21-26 of prior U.S. Patent No. 6,753,167 B2 are both directed to same method of expression of heterologous polypeptide i. e., by introducing a polynucleotide encoding a chimeric fusion polypeptide, vector, host cell and method of making polypeptide, said fusion polypeptide comprising the elected species: factor Xa, carp growth hormone and oil body protein oleosin. The claims differ in that claim 57 of instant application recites "A method of expression of a heterologous polypeptide by a host cell, wherein said host cell is an insect or animal cell", whereas 1-9, 13-19 and 21-26 of prior U.S. Patent No. 6,753,167 B2 recites "A method of expression of somatotropin in plants ...". Therefore, given the methods of claims 1-9, 13-19 and 21-26 of prior U.S. Patent No. 6,753,167 B2, it would have been obvious to one of ordinary skill in the art to modify the host cell in claims 1-9, 13-19 and 21-26 of prior U.S. Patent No. 6,753,167 B2 to an insect or animal cells. One of ordinary skill in the art would have been

motivated to do this because the repotire or range of the host cells used for expression is expanded.

Claims 42-50, 55, 58-60, 61 and 63-67 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9, 12-15 and 17-19 of reference patent U.S. Patent No. 5,948,682. An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claim, because the examined claim is either anticipated by, or would have been obvious over reference claim. See, e.g., *In re Berg*, 140 F.3d 1428,46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir.1993); *In re Longi* 759 F.2d 887,225 USPQ 645 (Fed. Cir. 1985). Claims 42-50, 55, 58-60, 61 and 63-67 of the instant application and claims 1-9, 12-15 and 17-19 of reference patent U.S. Patent No. 5,948,682 are both directed to same method of expression of heterologous polypeptide i. e., by introducing a polynucleotide encoding a chimeric fusion polypeptide, vector, host cell and method of making polypeptide, said fusion polypeptide comprising the elected species: factor Xa, carp growth hormone and oil body protein oleosin. The claims differ in that claims 42-50, 55, 58-60, 61 and 63-67 of instant application recites "A method of expression of a heterologous polypeptide by a host cell...", whereas claims 1-9, 12-15 and 17-19 of reference patent U.S. Patent No. 5,948,682 recites "A method of expression of a heterologous polypeptide by a yeast host cell...". Although, the conflicting claims are not identical, they are not patentably distinct from each other. Claims 42-50, 55, 58-60, 61 and 63-67 of the instant application listed above are generic to all that is recited in claims 1-9, 12-15 and 17-19 of

reference patent U.S. Patent No. 5,948,682. That is, claims 42-50, 55, 57-60, 61 and 63-67 of instant application falls entirely within the scope of claims 1-9, 12-15 and 17-19 of reference patent U.S. Patent No. 5,948,682 or in other words, the "host cell" of claims 42-50, 55, 58-60, 61 and 63-67 of instant application is anticipated by "yeast host cell" of claims 1-9, 12-15 and 17-19 of reference patent U.S. Patent No. 5,948,682.

Claim 57 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9, 12-15 and 17-19 of reference patent U.S. Patent No. 5,948,682. An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claim, because the examined claim is either anticipated by, or would have been obvious over reference claim. See, e.g., *In re Berg*, 140 F.3d 1428,46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir.1993); *In re Longi* 759 F.2d 887,225 USPQ 645 (Fed. Cir. 1985). Claims 57 of the instant application and claims 1-9, 12-15 and 17-19 of reference patent U.S. Patent No. 5,948,682 are both directed to same method of expression of heterologous polypeptide i. e., by introducing a polynucleotide encoding a chimeric fusion polypeptide, vector, host cell and method of making polypeptide, said fusion polypeptide comprising the elected species: factor Xa, carp growth hormone and oil body protein oleosin. The claims differ in that claim 57 of instant application recites "A method of expression of a heterologous polypeptide by a host cell, wherein said host cell is an insect or animal cell", whereas claims 1-9, 12-15 and 17-19 of reference patent U.S. Patent No. 5,948,682 recites "A method of expression of a heterologous polypeptide by a yeast host cell...". Therefore, given the methods of claims 1-9, 12-15 and 17-19 of reference patent U.S. Patent No. 5,948,682, it would

have been obvious to one of ordinary skill in the art to modify the host cell in claims 1-9, 12-15 and 17-19 of reference patent U.S. Patent No. 5,948,682 to an insect or animal cells. One of ordinary skill in the art would have been motivated to do this because the repotire or range of the host cells used for expression is expanded.

Claims 42-46, 55, 56, 58, 59, 60, 61, 63 and 65-67 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 and 9-11 of reference patent U.S. Patent No. 6,288,304 B1. An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claim, because the examined claim is either anticipated by, or would have been obvious over reference claim. See, e.g., *In re Berg*, 140 F.3d 1428,46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir.1993); *In re Longi* 759 F.2d 887,225 USPQ 645 (Fed. Cir. 1985). Claims 42-46, 55, 56, 58, 59, 60, 61, 63 and 65-67 of the instant application and claims 1-7 and 9-11 of reference patent U.S. Patent No. 6,288,304 B1 are both directed to same method of expression of heterologous polypeptide i. e., by introducing a polynucleotide encoding a chimeric fusion polypeptide, vector, host cell and method of making polypeptide, said fusion polypeptide comprising the elected species: carp growth hormone and oil body protein oleosin. The claims differ in that claims 42-46, 55, 56, 58, 59, 60, 61, 63 and 65-67 of instant application recites "A method of expression of a heterologous polypeptide by a host cell...", whereas claims 1-7 and 9-11 of reference patent U.S. Patent No. 6,288,304 B1 recites "A method of expression of a somatotropin (carp growth hormone) in plants/plant cell...". Although, the conflicting claims are

not identical, they are not patentably distinct from each other. Claims 42-46, 55, 56, 58, 59, 60, 61, 63 and 65-67 of the instant application listed above is generic to all that is recited in claims 1-7 and 9-11 of reference patent U.S. Patent No. 6,288,304 B1. That is, claims 42-46, 55, 56, 58, 59, 60, 61, 63 and 65-67 of instant application falls entirely within the scope of claims 1-7 and 9-11 of reference patent U.S. Patent No. 6,288,304 B1 or in other words, the "host cell" of claims 42-46, 55, 58-60, 61 and 63-67 of instant application is anticipated by "plants/plant cell" of claims 1-7 and 9-11 of reference patent U.S. Patent No. 6,288,304 B1.

Claims 47-50 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 and 9-11 of reference patent U.S. Patent No. 6,288,304 B1. An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claim, because the examined claim is either anticipated by, or would have been obvious over reference claim. See, e.g., *In re Berg*, 140 F.3d 1428,46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir.1993); *In re Longi* 759 F.2d 887,225 USPQ 645 (Fed. Cir. 1985). Claims 47-50 of the instant application and claims 1-7 and 9-11 of reference patent U.S. Patent No. 6,288,304 B1 are both directed to same method of expression of heterologous polypeptide i. e., method of expression of somatotropin/chimeric fusion protein by a .... The claims differ in that claims 47-50 of instant application recites "said fusion polypeptide has a cleavable linker polypeptide is recognizable by factor Xa", whereas claims 1-9, 12-15 and 17-19 of reference patent U.S. Patent No. 5,948,682 recites "method of expression of heterologous polypeptide i. e., by introducing a polynucleotide encoding a chimeric fusion polypeptide, vector, host cell and method of making polypeptide ...". Therefore,

it would have been obvious to modify the "method of expression of somatotropin/chimeric fusion protein by a ..." in claims 1-9, 12-15 and 17-19 of reference patent U.S. Patent No. 5,948,682 such that "said fusion polypeptide has a cleavable linker polypeptide is recognizable by factor Xa ". One of ordinary skill in the art would have been motivated to do this because that embodiment is disclosed as being preferred embodiment within claims 1-9, 12-15 and 17-19 of reference patent U.S. Patent No. 5,948,682.

Claim 57 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 and 9-11 of reference patent U.S. Patent No. 6,288,304 B1. An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claim, because the examined claim is either anticipated by, or would have been obvious over reference claim. See, e.g., *In re Berg*, 140 F.3d 1428,46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir.1993); *In re Longi* 759 F.2d 887,225 USPQ 645 (Fed. Cir. 1985). Claims 57 of the instant application and claims 1-9, 12-15 and 17-19 of reference patent U.S. Patent No. 5,948,682 are both directed to same method of expression of heterologous polypeptide i. e., by introducing a polynucleotide encoding a chimeric fusion polypeptide, vector, host cell and method of making polypeptide, said fusion polypeptide comprising the elected species: factor Xa, carp growth hormone and oil body protein oleosin. The claims differ in that claim 57 of instant application recites "A method of expression of a heterologous polypeptide by a host cell, wherein said host cell is an insect or animal cell", whereas claims 1-7 and 9-11 of reference patent U.S. Patent No. 6,288,304 B1recites "A method of expression of a somatotropin (carp growth hormone) in plants/plant cell...". Therefore, given

the methods of claims 1-7 and 9-11 of reference patent U.S. Patent No. 6,288,304 B1, it would have been obvious to one of ordinary skill in the art to modify the host cell in claims 1-7 and 9-11 of reference patent U.S. Patent No. 6,288,304 B1 to an insect or animal cells. One of ordinary skill in the art would have been motivated to do this because the repotire or range of the host cells used for expression is expanded.

Allowable Subject Matter/Conclusion

None of the claims are allowed.

Final Comments

To insure that each document is properly filed in the electronic file wrapper, it is requested that each of amendments to the specification, amendments to the claims, Applicants' remarks, requests for extension of time, and any other distinct papers be submitted on separate pages.

It is also requested that Applicants identify support, within the original application, for any amendments to the claims and specification.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ganapathirama Raghu whose telephone number is 571-272-4533. The examiner can normally be reached on M-F; 8:00-4:30 pm EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300 for regular communications and for After Final communications. Any inquiry of a general nature or relating to the status of the application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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